

REMARKS

This Amendment, filed in reply to the Office Action dated May 20, 2005, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

Claims 1, 3-6, 8-17, 19-22 and 24-33 remain pending in the application. Claims 1, 3-6, 8-17, 19-22 and 24-32 have been rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claims 1, 3, 4, 6, 8-11, 17, 19-20, 24-27 and 36-37 have been rejected under 35 U.S.C. § 103 as being unpatentable over Stevenson (U.S.P. 6,393,161) in view of Sugiura (U.S.P. 6,034,766). Claims 5 and 21 have been rejected under 35 U.S.C. § 103 as being unpatentable over Stevenson and Sugiura and further in view of Suganuma (U.S.P. 6,034,794). Claims 12 and 28 have been rejected under 35 U.S.C. § 103 as being unpatentable over Stevenson and Sugiura and further in view of Denbar (U.S.P. 5,214,470). Claims 13-16 and 29-32 have been rejected under 35 U.S.C. § 103 as being unpatentable over Stevenson and Sugiura and further in view of LeCouteur (GB 1547811). Claim 33 has been rejected under 35 U.S.C. § 103 as being unpatentable over Denbar, LeCouteur and Sugiura. Applicant hereinabove amends the claims to obviate the Section 112 rejection and further respectfully submits the arguments set forth below in traversal of the prior art rejections.

With regard to the Section 112, second paragraph, rejections, it is Applicant's understanding that the Examiner wishes to remove a comma to improve the readability of the claims. Such an amendment is set forth above.

With regard to the prior art rejections, Applicant submits that the present invention relates to a method and apparatus for detecting defect errors that occur in the optical elements of an

imaging apparatus and also for detecting defect errors due to dust, abrasions or other sources that occur in the recording film. Referring to an exemplary embodiment as illustrated in Fig. 2, a one line CCD 119 receives light energy to detect defects occurring in a film 115 or in a diffusion plate 114, for example. The focusing lens may change focusing positions depending on the nature of the defect being detected by the line CCD.

Turning to the primary cited art, Stevenson relates to an error detector for defects occurring in a film. Such defects are detected by the presence of a constant or non-varying high density output occurring at a particular location. Col. 2, lines 44-47.

Sugiura relates to defect detection in an optical member that relies upon deflection of optical light by scratches or other anomalies occurring in optical devices. Referring to Fig. 1, line sensor 5 receives the light information from a target optical member 9 being inspected. A light shielding plate 8 extends beyond the edges of the target optical member 9 (see Fig. 3). The width of the plate is greater than a spacing between marginal ray lines of light that can be incident upon each pixel of a line sensor. In the event of a defect free optical member, the line sensor 5 receives only a dark signal. Col. 10, lines 54-65. By contrast, in the case of the presence of a defect on the optical member, light diffusing around the shielding plate impinges upon the defects of the optical member and illuminates light onto the image sensor 5. Col. 11, line 65 to col. 12, line 9.

Denbar relates to correction of imaging defects due to scratches or dirt that exist in a platen of a document copier.

LeCouteur relates to detection of scratches in films using IR radiation.

The Examiner contends Stevenson and Sugiura teach or suggest each feature of Applicant's independent claim 1. The Examiner concedes that Stevenson does not teach the focusing of light at a different position than a position of the recording medium and cites Sugiura to make up for this deficiency. Applicant submits that the rejection is not supported for the following reasons.

The Examiner contends that it would be obvious to combine the features of Stevenson and Sugiura in order to detect multiple types of error (optic elements and recording medium) and not just one. The rationale underlying the rejection is not supportable since in some situations, the proposed modification would not allow any defect to be detected, contrary to the Examiner's contention. In Stevenson, the detection of a spot existing on a parallel plate 12, for example, relies on detection of light at a spot S at a reduced intensity. By contrast, in Sugiura, the concept of the defect detection relies on the absence of receipt of any focused light information in the event there is no defect in the optical element disposed in the light path between the light source and line sensor. If the features of Sugiura were combined with Stevenson, the lack of light detection for the defect-free optical element would not provide any light detection to ascertain the defects as they occur due to spot S in Stevenson. In similar regard, the detection of a light in Sugiura corresponds to the detection of an error in an optical element. If such light were detected in the detecting apparatus of Stevenson, the spot S again could not be accurately detected due to the detection of the extraneous light. Thus, the combination defeats the purpose of each reference. Modifications that render the references inoperable for their intended purpose cannot support a prior art rejection. Moreover, rather than providing multiple sources of defect detection as the Examiner contends, the cited combination would result in the inability to detect

an error at a spot S. Therefore the motivation for combining Stevenson and Sugiura is not supportable for this additional reason.

Because claim 17 includes features analogous, though not necessarily coextensive, with claim 1, claim 17 is patentable for similar reasons. Applicant submits that none of the secondary references of Denbar, Suganuma and LeCouteur make up for the deficiencies of the primary combination. Claims 3-6, 8-16, 19-22, and 24-32 are patentable based on their dependency.

With regard to independent claim 33, this claim describes irradiating invisible light to detect both medium defects and optical element defects. The Examiner contends that the combination of Denbar and LeCouteur teaches this aspect of claim 33. However, Denbar relates only to defect detection in a platen and not defects in a medium. While the Examiner relies on col. 1 lines 51-56 and 61-64 of Denbar as teaching to two types of detection, lines 51-56 merely teach scanning a platen without the document, and lines 61-64 describe scanning the platen with the document. In either case, the platen defect is of interest, but no defect detection occurs on the medium itself. LeCouteur does not make up for this deficiency.

Additionally, LeCouteur does not recognize the applicability of invisible light to detect optical element errors, contrary to the Examiner's contention. Claim 33 describes invisible light detection of both medium error and optical element errors. Therefore, claim 33 is patentable for at least this reason.

Applicant adds claims 39-42 to describe features of the invention more particularly.

New claims 41 and 42 recite that the optical element on which the focusing point is set is disposed on a midway of the optical path to a reading position of the specified detecting light. Accordingly, the focusing point is a position other than at the reading position. The support for

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the recitation that the optical element on which the focusing point is set is disposed on a midway of the optical path to a reading position of the specified detecting light can be found on page 43, lines 1 to 6 in the specification of the present application.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.


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